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Nebraska Range Shortcourse: A Successful Approach to Continuing Education

Daniel R. Vaughn, Anthony D. Watson, Lowell E. Moser, and Walter H. Schacht

Casual visitors to Nebraska rarely see the diversity of the 23 million acres of its rangeland. The state boasts of its unparalleled range beef cattle industry which relies heavily on the Sandhills, a seemingly endless expanse of grass-covered dunes. In sharp contrast to the Sandhills, however, is a wide array of landscapes including the pine ridge of northern Nebraska, the sagebrush grassland of the southwestern region, the shortgrass prairie of the panhandle, the highly-dissected loess hills, and wooded river valleys. These land-



Nebraska

scapes offer a complex mixture of habitats, recreational opportunities, rangeland products, and management challenges. People with varied education and experience have interest in stewardship and management of Nebraska rangelands. They include ranchers, personnel of the Cooperative Extension Service and Natural Resource Districts, high school agricultural teachers, university professors and students, and federal agency personnel [e.g., Natural Resources Conservation Service (NRCS) and United States Forest Service (USFS)]. Because of the diversity and number of people interested in range management in Nebraska, a continuing education program was identified as a means of providing comprehensive instruction in range science and management.

In 1978, the Nebraska Section of the Society for Range Management (SRM) developed the Nebraska

Range shortcourse through a grant from the Old West Regional Range Program of the USDA Soil Conservation Service. This was the beginning of a 20-year success story in adult range education. The Nebraska Section, in collaboration with the University of Nebraska-Lincoln, planned and conducted the first shortcourse. The University of Nebraska-Lincoln (UNL) has assumed the leadership in organizing and teaching since 1978. Chadron State College (CSC) faculty, USFS and NRCS personnel, and ranchers currently contribute to classroom and field instruction. The Nebraska Section is a sponsor and the section's Range Shortcourse Committee is comprised of a group of the course's instructors.

The shortcourse is designed to meet the needs of a diverse audience. It provides (1) continuing education for people working in range-related occupations such as ranchers, range conservationists, or other professional range managers; (2) fundamental education in range science and management for individuals with little or no range background; and (3) field application experience and integration for range undergraduate and graduate students. It also exposes participants to the philosophy and personnel of the range-related educational institutions and agencies in Nebraska. Although the course is open to anyone interested in management of rangeland resources, the goal of the course is to provide an integrated view of rangeland management to individuals with training or experience in managing various components of rangeland or agricultural ecosystems. The article outlines a successful approach to conducting a continuing education experience in range management.

Structure and Approach

The shortcourse is offered in June of even-numbered years at CSC in north-western Nebraska. It is an intensive, week-long commitment and participants thoroughly immerse themselves in the study of range science and management. The Chadron area offers access to public lands, ranches, and other areas having a diversity of range sites and plants. When registering, participants are given the opportunity of taking the shortcourse for academic credit, either from UNL or CSC. It can be taken for undergraduate or graduate credit, but individuals taking the graduate credit option must complete a project in addition to the week-long course. Examples of projects have included conducting range surveys, preparing written reviews of range-related subjects, or developing ranch plans.

Participants are provided a 3-ring binder containing materials relating to each section of the course. Each morning, 3 to 4 classroom sessions about 1 hour long are presented by experts in each topic area. Afternoon field trips are used as a means for participants to gain practical experience related to material learned in the classroom sessions. This schedule provides variety and stimulates informal interaction among instructors and participants. Evenings are left open for studying plants and course material or for further interaction among participants and instructors. A quiz is given each morning covering the previous day's activities to encourage participants to review material presented. In the middle of the week, participants take a plant identification test in the field. A comprehensive exam is given on the final day so that participants and instructors can assess the effec-

tiveness of the shortcourse as a learning experience. Scores on the tests also serve as the basis for assigning course grades for those signed up for credit.

Topics

The course is structured around 5 main areas of range management: (1) rangeland resources; (2) ecology; (3) management of private and public land; (4) grazing and livestock management; and (5) fitting livestock to the production environment. Fundamental concepts are learned first to establish a foundation. Later, these concepts are integrated into practical application scenarios.

A slide presentation, "Vegetation Evolution on the Great Plains," on Sunday evening allows the participants to visualize the evolution of Nebraska rangeland and sets the stage for the course. Registration is completed and course materials are distributed during the first evening so that instruction can begin promptly the following morning.

Range Resources

Rangeland resources, i.e., geology, hydrology, soils, and plant physiology and identification, are emphasized on Monday. Factors involved in forming range soils illustrate why there is diversity among range sites. Plant physiology and morphology, including the impact of defoliation, provides a basis for understanding plant growth and response to environmental factors and management. Plants are identified on an instructor-led afternoon field trip. Participants learn the characteristics of about 75 common grasses, forbs, shrubs, and sedges. Their diligence in studying plants during the first part of the week pays off when a plant identification exam is given mid-week (Fig. 1).

Ecology

The interrelationship of climate, soils, plants, and animals in Great Plains ecosystems is the focus of the second day. An emphasis is placed on plant community dynamics and community response to environmental and



Fig. 1. John Overstreet, Nebraska Forest Service, studies one of about 75 grasses, forbs, and shrubs in preparation for the Wednesday evening plant identification exam.

management-related factors. Ecological models (e.g., plant succession, multiple stable states, and state-and-transition) are presented as they relate to assessment of range condition and health. The morning classroom instruction concludes with a session on range sites and condition. Students determine species composition, practice plant identification, and calculate range condition scores on an afternoon field trip (Fig. 2). Soil cores are removed from various locations to demonstrate the differences in range sites.

Management of Private and Public Land

Prescribed burning and revegetation are evaluated as examples of strategies for managing private and public rangeland. Staff of the USFS describe public land management for multiple uses, including recreation, wildlife, livestock, and conservation. A classroom session on inventorying vegetation and assessing wildlife habitat precedes an afternoon trip to USFS land. Participants are given an opportunity to interact in small group discussions and to conduct inventory exercises using such methods as the Robel-pole

to document visual obstruction and the step-point method to determine botanical composition.

Grazing and Livestock Management

Matching livestock demand to the range resource is a key topic. Participants balance forage supply and demand to determine the appropriate stocking rates and related management strategies. Grazing systems and their potential to influence stocking rate, range condition, and management flexibility are illustrated. Range livestock management practices are discussed emphasizing nutrient requirements at various phases in the animal's life cycle. A computer decision support system, Grazing Land Applications, is presented as a tool used by the NRCS for analyzing management plans and aiding in decision-making processes. Visualizing range management concepts in a production setting is accomplished by a ranch tour. An important part of the tour is the question and answer session with the rancher that allows participants to explore areas of personal interest in more depth.





Fig. 2. Shortcourse participants assess range condition during an afternoon field session.

Fitting the Livestock to the Range Resource

The final session is jointly presented by an animal scientist, a range scientist, and a range economist. They stress integrating rangeland, livestock, and economics in making decisions in a range livestock enterprise. Various management practices used in cow-calf operations are assessed, and alternatives are evaluated. Particular emphasis is placed on reducing production costs by adopting management strategies which minimize high-cost inputs (e.g., harvested forages and commercial feeds) and extend the grazing season.

Keys to Success

The Nebraska Range Shortcourse has 421 alumni. Interest in the course has remained high and enrollment has been excellent with an average of 45 to 50 participants. The following factors have been identified as keys to the continued success.

- Hands-on approach and small group interaction during field trips.
- An intensive, interactive, week-long format provides the depth of experiences the participants are seeking.

- Optimum enrollment number (45–50) keeps individual registration fees low while maintaining a group size that is logistically manageable
- Popular activities such as plant identification allow participants to make measurable progress during the week.
- Quizzes and exams encourage participants to review subject matter during the week.
- Core instructors (5) remain at CSC the entire week and are available during the day and evenings for discussion.
- Social activities (e.g., evening tours and group dinners) improve group identity and interaction.
- Food and lodging at CSC are available at reasonable prices.
- Formal evaluation allows participants to critique the course and provide input for course improvement.

The comments from participants have been very positive. One participant stated "the plant identification exercise really challenged me and seems so essential in understanding what makes up some of our rangeland. I kind of surprised myself on how much and how fast I was able to learn

these plants." Another participant said the course "rounded out [my] knowledge of the different aspects of range management." In 1996, all participants stated that they would recommend the course to others. The overall rating of the course in 1996 was 1.96 on a scale of 1 to 5 with 1 being the highest and 5 being the lowest.

Over the years, the shortcourse has "evolved to include more synthesis material and less specific information," emphasizes Dr. Lowell Moser, the shortcourse coordinator. Instructors and organizers continually seek ways for improvement by reviewing comments from participants, updating or refining subject material, evaluating presentation methods, and developing new field activities. The Nebraska Range Shortcourse is a successful vehicle to increase the knowledge base of people interested in and/or are actively involved in managing rangelands. It has successfully met the educational needs of each year's class even though the participants have varied backgrounds. Participant diversity has been a positive aspect of the shortcourse and has added breadth to discussions and field activities. Instructors have been encouraged to recognize the diversity when developing their presentations and to provide individualized instruction to participants whose range management knowledge is at either an especially low or high level. The shortcourse will continue to evolve and meet the changing needs of those interested in rangeland stewardship and management. Contact Lowell Moser, Coordinator, for further information about the Nebraska Range Shortcourse.

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